ADHESIVE PLASTER BANDAGING IN ATHLETICS

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ADHESIVE PLASTER BANDAGING IN ATHLETICS

An Illustrated Handbook on Proper Methods of Applying Preventive, Protective and Corrective Bandages

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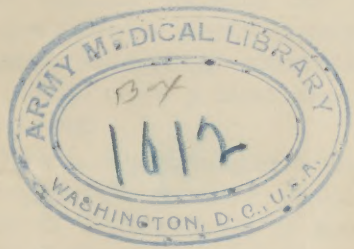

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INTRODUCTION

Physical training and athletic proclivities have become so fundamental in the bringing up of the American boy and girl that they are not confined to the ranks of those who have the advantage of attending universities and colleges. Grammar and high schools have, besides the regulation physical training prescribed in the curriculum, competing athletic teams. Factories, the Y. M. C. A., the Y. W. C. A., church and community clubs, engage in athletic rivalry. Last, but not least, there is the sand lot artist who is doing his bit in helping to build a sturdy race.

Our American boys and girls are beginning to find out things about themselves, and training methods, even though crude, are taking form. Such methods need guidance in order to be turned in the right direction. Ideas and details are often gleaned from the larger colleges, universities and clubs, where systematized methods of training are practiced under the supervision and guidance of physicians.

Among such training methods the matter of properly applying adhesive plaster is very essential. Adhesive plaster bandaging, sometimes termed strapping or taping, plays a most important part in athletics of today.

We now have a highly developed system of preventive training, with adhesive plaster holding prominent place in the prevention of accidents and the well being of the athlete.

The proper application of adhesive plaster, in preventive bandaging, is sometimes at variance

with but never in opposition to the methods used by physicians and surgeons. Of necessity the former is so, because in athletic competition the strain is sometimes of such a nature that the ordinary surgical application intended for the patient, confined to a bed, or comparative quiet, would prove entirely insufficient. The adhesive plaster bandages described in this booklet are mostly the results of suggestions received from physicians at the universities and other institutions where the writer has been the athletic trainer.

This booklet is intended for those who have had no such opportunities and for those who, while already possessing some knowledge along these lines, desire to obtain a still greater proficiency.

Adhesive Plaster Applications

General Advice

Although the application of adhesive plaster bandages as preventive measures in athletics do not require so much expert skill as do those which physicians and surgeons apply in their practice, it is a great mistake to presume that these bandages may be "slapped on."

A considerable number of accidents occur in the game of football, particularly ankle sprains. Ankle sprains are not necessarily serious, but may result in weak ankles, and a weak ankle, on the gridiron, may constitute the underlying cause for a fracture, which might or might not be "compound" in nature. If compound (when the bone ends protrude through the skin after having pierced the muscles) infection or blood-poisoning may result with the eventual prospect of amputation of the injured member. While it is very prudent to employ the use of ankle bandages, it is equally imprudent to apply them "any old way." Ankle sprains in football or any other sport are generally preventable.

There are two reasons advanced against the extensive use of adhesive plaster in athletics. One reason is the expense and the other, that prolonged bandaging is apt to leave the skin in a bad condition.

As to the expense, it is of some expense to keep the members of a fairly large aggregation strapped the whole length of a season, but this is materially offset by the saving the trainer or coach actually effects in preventing injuries or protracted lay-offs. In addition, the men's welfare should be held in mind. In organizations where bandaging has been

tried, it has become the policy to continue its use because of the good results obtained through systematic bandaging as against occasional bandaging or none at all.

As regards the difficulty of keeping the skin in good condition when bandaging extensively, that is principally the result of a lack of knowledge of training room sanitation.

Training Room Economy

A trainer, in bandaging a team for a game or for practice, may use up several rolls (spools) of adhesive; a number of odd straps will be left over. Instead of discarding these, he should gather all odds and ends and stick them to a large square of gauze that he has tacked up on the wall for that purpose. He should unroll all spools which have some plaster remaining on them. These remnants should likewise be stuck on the square of gauze.

Training Room Sanitation

The matter of keeping the skin in good condition, under a continuous strapping during a playing season, is quite simple when systematized. As a rule, all applications are removed each day, except ankle bandages. Do not allow any particle of adhesive plaster to remain. Soap is useful in washing the surface from which straps have been removed. In addition, alcohol rubs (40% strength) are excellent for re-invigorating the skin. Ankles should be massaged at least once a week, using olive oil, cocoa butter or a greasy cold cream. At institutions where there are professional trainers the athletes receive daily rubs, and a massage treatment occasionally, which cannot fail to keep the

skin healthy even if subjected to almost constant application of adhesive during the playing season.

When there has been a surface injury or skin blisters, it is advisable before bandaging to cover that part with a piece of surgical gauze, after having applied some soothing ointment. When bandages are used continuously they should be changed once a week—removed, for instance, on Saturdays and allowed to remain off for a period of two or three days, then renewed. Contact with water does not injure the bandages but they should be dry before the athlete ventures out. A toilet or talcum powder sprinkled over the bandage, in its entirety, after application, helps to dry it quickly. Care must be exercised to avoid the talcum getting on the face of the adhesive:—it destroys the adhesiveness.

Feet that are subject to constant bandaging should receive attention. Adhesive plaster is being blamed for skin conditions that are primarily brought on by neglect. The feet are inclined to perspire more freely than any other part of the body and therefore, unless kept clean, skin trouble very easily results. A good foot soap will assist in cleaning the feet effectively, and being astringent and antiseptic will aid in preventing infections.

The practice of shaving before applying adhesive plaster to the feet and ankles, is not necessary. Hair, when thick, will prevent the adhesive from sticking properly to the skin and render the operation of removal painful, but the ordinary growth of hair rather assists the sticking qualities. The trainer is only justified in shaving the parts to be bandaged in cases where there is a considerable

growth of hair. Care should then be taken not to shave too closely, and that some antiseptic wash is applied; infections may occur in prolonged plaster applications to shaved parts.

Trainers and athletes labor under the impression that, in order to remove adhesive plaster without discomfort, it is necessary to do it gradually. This method is a prolonged agony. It is equally faulty to remove the plaster with a jerk. Such a method may pull the skin with the adhesive plaster. An adhesive plaster bandage should be prepared for removal by the use of a pair of bandage scissors

Fig. 1—Removing adhesive plaster

slid under the bandage. With the flat nose against the skin, the plaster should be clipped in as nearly a straight line as possible, after which the bandage may easily be removed. See *Figure* 1.

One reason for skin trouble in prolonged bandaging, is that the athlete may have been using socks of a poor quality. The athlete should wear only the highest grade, free from poisonous dye stuffs.

The bandaged athlete often finds that, when he

is in street attire, his socks stick to the ankle applications. This is prevented by sprinkling toilet or talcum powder freely over the completed bandage.

Borated talcum powder is recommended for the feet themselves. It should be rubbed into the skin after the adhesive bandage has been removed, and on all parts given to excessive perspiration.

Adhesive Bandage Technique

There is always a tendency toward cross tearing of adhesive plaster straps at points where it is subjected to the heaviest strain. To prevent such tearing there are three methods:

(1) Place gauze under the adhesive. However, bandages with underlying gauze do not stick as well to the skin as do those without. There are cases, however, in which one is justified in applying gauze under the bandage, such as, for instance, cases of delicate skin, in prolonged bandaging.

(2) Tear or cut lengthways splits in the straps at the fastening points before fastening. The objection to this method is that when these straps are subjected to heavy strains they will tear further lengthways, such tearing detracting from the solidity of the bandage.

(3) A third method used to strengthen the adhesive straps, is to wrinkle the bandage. For an amateur this is easy enough, as he has difficulty in applying the plaster smoothly. The plaster will pucker and such puckering in the completed bandage when patted down with the hands will then become wrinkles. These wrinkles will constitute an artificial tendon, and the pressure which will cause a tear over such tendons in adhesive plaster will have to be very great.

Preventive Bandages

Ankle Bandages

There are four types of ankle bandages: Figure of 8 Bandage—Athletic Gibney Bandage—Single Glimstead Football Bandage—Double Glimstead Football Bandage.

The purpose of these bandages is to keep the athlete's foot from turning under and prevent that particular strain, known among athletes as outside sprain.

The Figure of 8 Bandage

This bandage is one of general utility. It steadies the ankle in a general way and may be employed in all forms of athletics. In football it should be used only for practice. The strain on the ankle in football is very great and a stronger bandage is needed.

Technique: This bandage is a continuous bandage and should be applied off the spool (plaster roll). See *Figure* 2.

1. Place the foot in an upward and outward position. This position should be maintained until the bandage is completed.
2. Locate the starting point, which is situated midway on the bridge of the foot. Its exact place is indicated with a cross in *Figure* 3.
3. Hold the plaster roll (2-inch width) with the index finger and the thumb of the right hand placed in the apertures at the ends of the spools, so that the roll will revolve.
4. Fasten the end of the adhesive plaster to the starting point and bring the spool toward the inside and under the foot.
5. Bring the spool over on top of the foot across the starting point and backward on the inside toward the ankle.
6. Return on the outside of the ankle, over to the starting point that now becomes a fastening point. Tear off and fasten.

7. Using the flat palm of the hands, press the plaster against the surface; this will cause wrinkles, thus strengthening the foot and ankle cast. *Figure* 3 shows the bandage at this stage.

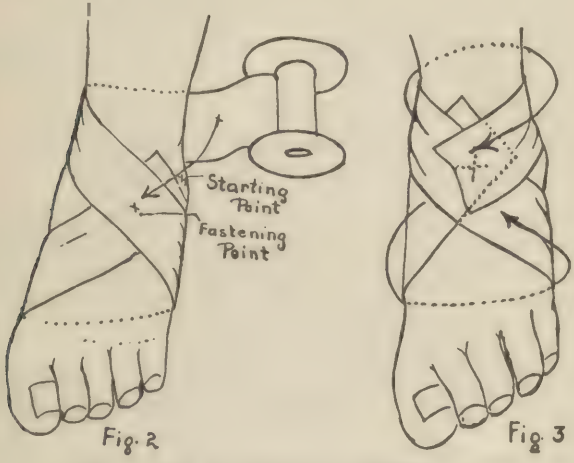


Fig. 2 and 3—Figure-of-8 bandage

8. An extra strap may be used for weak insteps. This is applied in the following manner: Start on the bridge of the foot, bring the strap under the foot towards the inside and up on the outside to the starting point where it is fastened, overlapping the starting point.

Athletic Gibney Bandage

This bandage is constructed along the lines of an application well known to physicians and surgeons, designed by the famous surgeon, Dr. Gibney.

Unlike the other forms of ankle bandages mentioned, it is a smooth bandage, and thus harder for the amateur to apply. It consists of several separate straps.

Generally eight straps, one-inch width, of ad-

hesive plaster are used, of which there are four of one length and an equal number of another length. These straps are prepared beforehand and in application placed in an overlapping and intersecting manner. This method of overlapping and intersecting adhesive plaster straps, is so typically Gibney that all bandages similarly fastened are referred to as being applied Gibney-fashion. The overlapping and intersecting method of the Gibney bandage is shown in *Figures* 4 *and* 5.

Technique: First, the approximate length of the four long straps should be about six inches each, and the shorter ones four inches each. A method of measuring is to lead the adhesive off the roll over the area to be bandaged, from the starting point, as if actually applying the bandage, but with the non-adhesive side next the skin.

Stick these straps on some convenient object within reach, such as the back of a chair or a table edge, until ready to apply.

THE FIRST STRAP (long). Place the foot in an upward and outward position—the most natural thing to do—which is the correct position in all ankle bandages. This position must be maintained until the bandage is completed. Start the first strap two inches above the ankle joint on the inside of the leg, well back toward the calf muscles (this point is indicated with letter A-1 in *Figure* 6). Bring the strap down on the inside of the leg, well back on the ankle and under the heel. At this point a steady pressure should be exerted. Bring the strap up on the outside of the leg, well back on the ankle and fasten the end at B-1. (For the proper application of all straps in the Gibney bandage, see *Figure* 6.)

THE SECOND STRAP (short). Fasten the end at C-1. Carry the strap around the ankle on the inside; continue around the heel and well above the same. Bring the strap forward on the outside of the ankle, using firm pressure all the while, and fasten at C-1, the ends slightly overlapping. This constitutes the intersecting method in the application of the Gibney bandage.

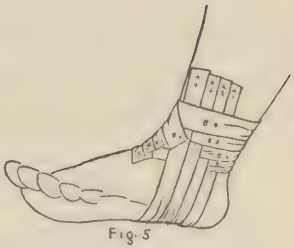
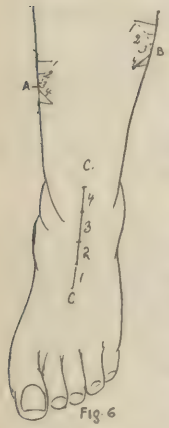


Fig. 4 5 and 6—The Gibney bandage



THE THIRD STRAP (long). Start at A-2 half an inch further forward than the first strap, thereby overlapping same by one-half of its own width. Carry this third strap in overlapping fashion, parallel with the first strap, to point B-2 where it is fastened. This constitutes the overlapping method in the application of the Gibney bandage, and is herein noted as "applying Gibney fashion."

THE FOURTH STRAP (short). This strap starts at point C-2, overlapping the second strap by half its own width, and is carried in this fashion parallel around the heel, intersecting the third strap, to its own starting point where it is fastened, the ends overlapping.

THE FIFTH STRAP (long). Start at point A-3 in front of the third strap, overlapping same by one inch. It is carried parallel with the third strap, intersecting the fourth, to point B-3, where it is fastened.

THE SIXTH STRAP (short). Start at point C-3 above the fourth strap, overlapping same by one inch. It is carried in this manner parallel with the fourth strap, intersecting the fifth, to its own starting point where it is fastened.

THE SEVENTH STRAP (long). Start at point A-4 in front of the fifth strap, overlapping same by half its own width, and carry thus parallel with the fifth strap to point B-4, where it is fastened. It intersects the sixth strap.

THE EIGHTH STRAP (short). Start at point C-4, above

and overlapping the sixth strap. Run parallel with, and overlapping, the sixth strap, intersecting the seventh, to point C-4, where fasten.

Figures 4 *and* 5 illustrate different stages of application of bandages "Gibney fashion"—intersecting and overlapping.

Single Glimstead Football Bandage

For this bandage use the two-inch width adhesive. It consists of three straps, continuously applied, or off the roll.

Technique: Place the foot in an outward and upward position.

The starting point is the same as in the Figure of 8 Bandage or midway on top of the bridge of the foot. (*Figure* 3.)

THE FIRST STRAP. Start at point as indicated above. Bring the strap down on the inside of the foot and under the instep. Carry it up on the outside and fasten approximately three inches above the ankle. Tear off. (See *Figure* 7.)

THE SECOND STRAP. This strap encircles the leg. Start the strap at the fastening point of the first strap. Bring it around the calf of the leg to its starting point and let the end overlap same when fastening. *Note*: There appears an empty space between the strap and the leg from the outside border of the foot to the fastening point. (See *Figure* 8.) The plaster will subsequently be pressed down here by the third strap which will serve to accentuate the upward and outward position of the foot.

THE THIRD STRAP. Apply exactly like the Figure of 8 Bandage, using the same starting point as in the first strap; that point also becomes the fastening point. The bandage is now complete; wrinkle and flatten down. *Figures* 9 *and* 10 show the completed bandage and also indicate the wrinkles purposely made through the flattening down process—puckering the adhesive plaster. These wrinkles are of importance in athletic adhesive bandages, constituting as they do artificial tendons, simultaneously preventing crossway tears in the strapping.

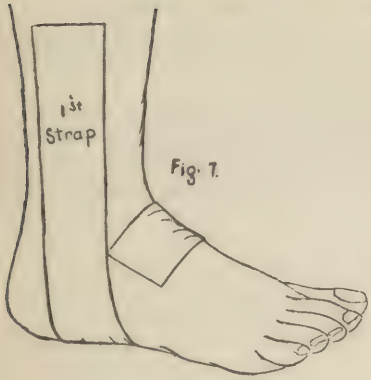


Fig. 7.

Fig 8

Fig 9

Fig. 10

Fig. 7, 8, 9 and 10—Single football bandage

Double Glimstead Football Bandage

This bandage consists of four straps of two-inch width adhesive plaster.

Technique: The position of foot is upward and outward.

THE FIRST STRAP. Start in the same place as with the first strap in the single Glimstead Football Bandage. Bring the strap under the instep outward to the border of the

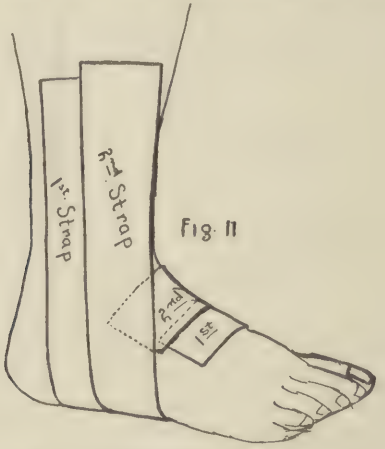


Fig. 11—Double football bandage

foot; from there upwards to the same fastening point as that of the first strap of the Single Glimstead Football Bandage, only a trifle further back. Tear off and fasten.

THE SECOND STRAP. Start at the same point as the first strap, and run along-side of the first one, the edges overlapping about half the width of the adhesive, to the fastening point of the first strap. Tear off and fasten. See *Figure* 11.

THE THIRD STRAP. Encircle the leg at the fastening point of the first and second straps, overlapping these about 2 inches. Tear off and fasten.

THE FOURTH STRAP. This consists of a Figure of 8 Bandage applied twice, under the instep and around the ankle. The lower half of the second application slightly overlaps the first turn, while the upper half of the second

turn overlaps the first to the extent that no skin area below the circular or third strap remains uncovered. In this instance the tendency to puckering and feasibility of wrinkling the bandage becomes very marked, especially on the outside of the ankle, which is excellent for the purpose, as the smoothing and patting down process of these puckers become a means of molding strength-preserving ridges—artificial tendons. (See *Figure* 12.) Smoothness of application does not mean solidity in athletic adhesive bandaging.

Fig. 12—Double football bandage

Spreading Toe Strap

This is applied to prevent the too liberal spreading of the toes, when in action. It is used mostly by track athletes. Track athletes are temperamental. If a track star discovers that it is impossible to perform properly without such a toe strap, it is wise to apply this sort of a bandage, if only for its moral effect.

Technique: The strap used is one-inch width. *Figure* 13 shows the strap starting at a point centrally located on the foot just above the first joints of the toes, and is then

carried around underneath that part of the foot and up on the opposite side, over on top, where it is fastened in criss-cross fashion. The pressure while firm, should not bind. There should be full flexibility between the toes in the continuation of the foot—the part just above the first toe joint.

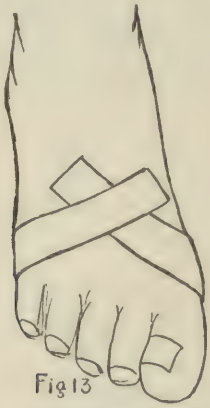


Fig. 13—Spreading toe strap

If more than one strap is necessary it is advisable to consult the athlete himself; additional ones ought, however, to be fastened in overlapping fashion.

Instep Pad and Strap

An otherwise physically perfect individual may be prevented from participating in sports, or may not be able to do his best, through weak insteps. The ankle bandages already shown will help that condition, temporarily. The very simple application mentioned below will tend toward securing foot comfort, and permanent improvement.

If one studies the bottom of the uplifted foot one will observe the hollow known as the arch. This hollow is deeper at the inside border of the foot than at the outside border, and one might say

that one of its ridges is in a line with the first joints of the toes, whereas the opposite one, less distinctly defined, is situated crossways at the start of the heel-bone. (See *Figure* 14.)

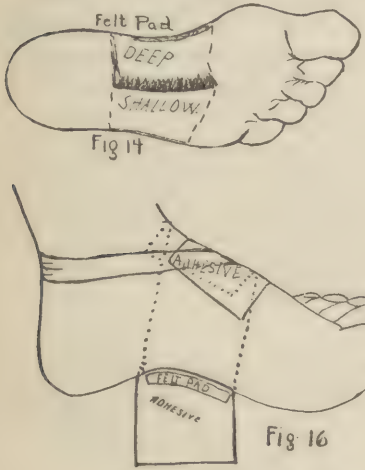


Fig. 14, 15 and 16—Instep pad and strap

Technique: Fasten a square of felt so that it conforms to the contours of the ridges and borders of the hollow known as the arch. Separate the felt by half its thickness from the outside border to the inside and double over the inside half as indicated in *Figure* 15. Then fasten the pad into the hollow so that it fits into it snugly. Fasten the two-inch width adhesive straps used for that purpose on top of the foot, one end meeting and overlapping the other.

Finally apply a one-inch width adhesive strap around, and well over the heel, fastening each end of it on top of the instep. This strap should be applied with a firm pressure over the tendon above the heel, as that in some measure lifts the heel-bone which in all cases of weak insteps, sags downwards. For a correct idea of the proper method of application of the completed bandage see *Figure* 16. The same pad may be reapplied several times.

Knee Pad and Strap

This application is used to prevent full flexion in a knee that has been injured to the extent that extreme flexion will cause sharp pain that will eventually stop the athlete's speed. The "Charlie-Horse" so common in football, if situated on the thigh, causing flexion-limitation of the knee, is another instance where it is desirable to attain a

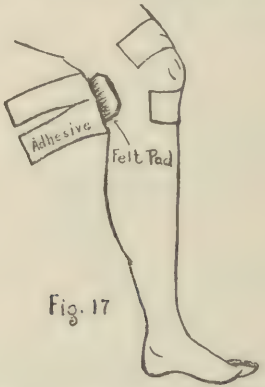


Fig. 17—Knee pad and strap

degree of limitation of motion. The application described is also credited with giving a certain amount of security in cases of subluxation of the knee—the partial dislocation.

Technique: Adhesive felt is excellent material for making this pad, especially as some stiffness is required, and the glazed adhesive surface on one side helps to furnish the desired resistance. While generally only one thickness is needed, there are instances when it is advisable to effect much limitation of flexion when two, three or more thicknesses, one on top of the other, should be used; in sticking them together note that the glazed side of the felt is adhesive. The felt is then fastened into a rectangular shape, approximately 5 by 2½ inches in size, so that it will fit

into the hollow under the knee joint. The corners should be trimmed off, and the pad fastened under the knee by the use of a three-inch width adhesive strap, each end of which is split so that when they are securely fastened on top of the knee, without meeting, they should not hinder the flexibility of the knee-cap or stop the circulation. By splitting the ends they may be spread in fastening. Thus the two lower split ends almost meet below the knee-cap and the other two split ends almost meet above it. (See *Figure* 17.)

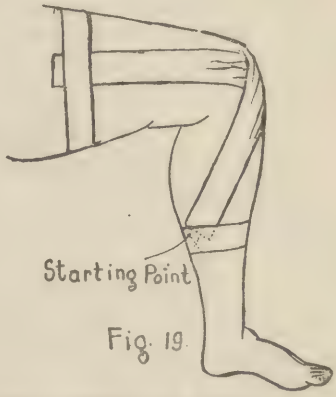


Fig. 18 and 19—Knee straps to prevent full flexion

In knee injuries necessitating straps of this kind, there are at times evidence of "torn" cartilage. In these cases the writer has not found strapping of any benefit, though it is often done—small strips, applied Gibney fashion and carried out thus until the entire injured area is covered. A reenforcing strap, two-inch width, is used when limitation of flexion is desired. This is applied as described in the technique of the anti-flexion knee straps.

Knee Straps to Prevent Full Flexion

These straps are really re-enforcement straps, such as those just mentioned, and they are applicable in similar cases.

Technique: In applying these straps, the knee should be

held in full extension. Use the two-inch width adhesive. Start on the inside of the thigh, midway between the crotch and the knee-cap. Bring the adhesive obliquely outward and downward, over the knee-cap, to just below the thick part of the calf muscles, well back. Tear off and fasten. A second strap starts on the outside of the thigh, at a point opposite the starting point of the first strap. Bring the adhesive inward and downward, crossing the first strap at the knee-cap to a point on the inside of the leg opposite the fastening point of the first strap. When completed this bandage forms the shape of the letter X. Should it be advisable to reenforce it, apply straps circular fashion over the starting and fastening points respectively. (*Figures* 18 *and* 19.)

Track Muscle Strap

Athletes are very often subject to that injury which is termed "pulled tendon," and which may entirely incapacitate the victim. It is generally a strain of the upper tendon of the muscle semitendinosus, among athletes commonly called the "track muscle," and whether an injury has, at some time, actually occurred or if the athlete for some reason fancies that he has a tendency toward it, the track muscle strap will lend considerable comfort and support at this point, which otherwise starts trembling as soon as the sprinter or dashman exerts himself.

It is of equal value for athletes suffering from that injury, who have to make an occasional speedy dash, such as in baseball, cricket, lacrosse, football, etc. This injury at times causes disablement.

Technique: Locate the point as is shown in *Figure* 20. It is situated, approximately in the center, just below the buttock. In genuine cases this spot is generally quite sore to the touch. At this point apply a two or three-inch width adhesive strap, circular fashion, after having first inserted a small, one-inch thickness, circular piece of felt,

over the place where the most pressure is desired. (See *Figure* 20.)

Caution: Too tight an application will hinder the circulation.

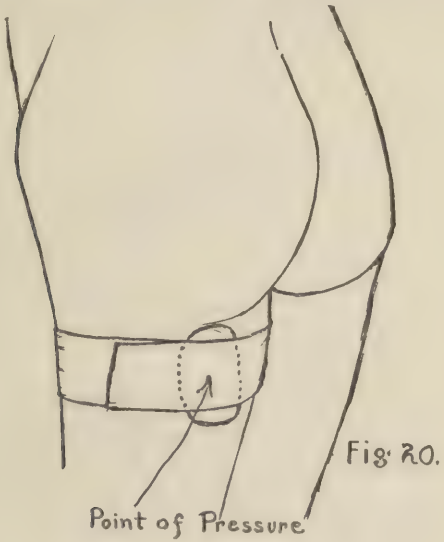


Fig. 20—Track muscle strap

Chest and Rib Bandages

Straps applied in Gibney fashion are often fastened over ribs, which for various reasons are considered frail, or have been fractured. This practice serves no effective purpose except that it gives a sense of security. The chest bandage is quite useful and the two measures, chest and rib bandages, are of cooperative value.

Technique: When there have been injuries to the ribs and in mild cases of intercostal (between the ribs) neuralgia, it is hard to take a full breath, but such conditions hardly constitute grounds for not participating in athletics.

It is advisable to apply breath-restraining bandages, using the three-inch width around the lower part of the chest in the manner indicated in *Figure* 21.

Before applying, the athlete should take a few full breaths, as deep as possible, and finally, when the bandage

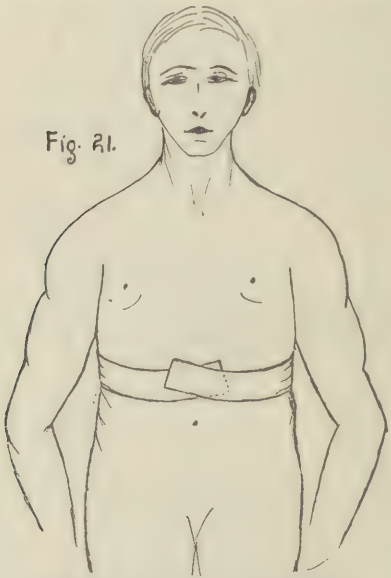


Fig. 21—Chest and rib bandage

is being applied he should permit a slight exhalation following a deep one, and then hold his breath; at this point the bandage strap should be applied. The pains, occuring with sharp inhalations, are thus stopped, and the athlete is not hindered in action. These pains are popularly known as "stitch in the chest."

Lumbar Straps

The athlete at times imagines that he has weak kidneys because he feels a lack of strength, tiredness of the muscles in the approximate location of the kidneys, or pains at these points. It is im-

probable that a vigorous young man should be thus afflicted, but it is not unlikely that he may have strained himself, or that he may be subject to slight rheumatic pains in the small of the back.

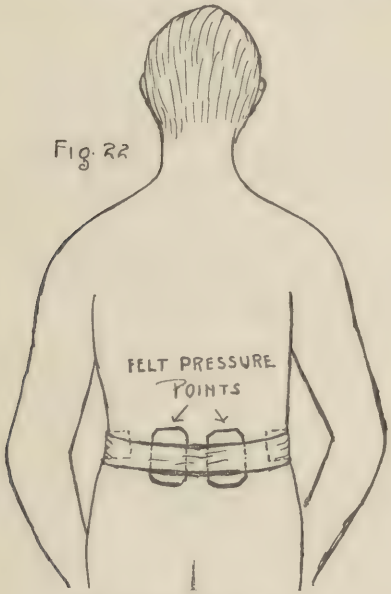


Fig. 22—Lumbar strap

The athlete feels that adhesive will lend support. When there is actual pain, a strap of adhesive, applied over these points, will to some extent relieve the pain. Such straps should be applied while the athlete is bending forward, as this will tend to assist in bringing greater pressure over the bulging muscles of the small of the back.

Technique: The strap, or straps, (in the latter case they are applied in an overlapping manner) should be fastened on or above the crest of the hip bones, stretched from one

side to the other across the back. (See *Figure* 22.) As indicated in the illustration the application may be allowed a slightly downward curve in the center, if that gives to the athlete the impression that it places the pressure directly over the point where his sore spots may be located.

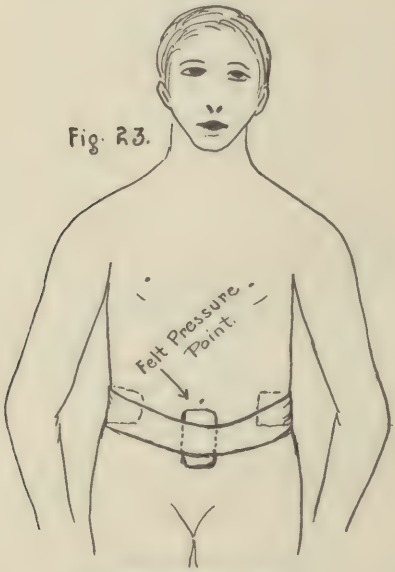


Fig. 23—Abdominal strap

In curving the straps there appear puckerings in the center which on smoothing down will become "wrinkles." Because of the gradual stretching to which the strap is subjected when strained, it is advisable to apply two or three horizontal over-lapping straps covering the lower part of the wrinkled area. Where additional pressure is desired rectangular pieces of felt, approximately 1 by 2 inches in size, may be inserted, one at each side of the spine at the small of the back. This insertion to be made before starting the plaster application. (See *Figure* 22.)

The Abdominal Strap

At times there are noted undefined pains in the abdominal region. When the trainer with the aid of a physician has ascertained that these are not of a serious nature, but merely of the order of muscular strains, he can do much toward relief by applying an adhesive strap three inches in width, from hip to hip giving pressure over the part affected. Such pressure may be made more effective through the insertion at that point of circular pieces of felt. (See *Figure* 23.)

Caution: If pains occur over the location of the appendix (approximately half the distance between the hip and the navel, on the right side of the abdomen), let the athlete stop work and consult a physician.

Thumb Straps

These are used to prevent frequently occuring sprains and dislocations (also subluxations) of the thumb. These mishaps are liable to occur both in football and in other strenuous kinds of sports. Most coaches claim that if thumb straps are made part of the combination hand, wrist and thumb strap, (which also may include the other fingers), it will render the athlete too clumsy to handle the ball with agility and precision and cause him to fumble the ball which is inexcusable in football. On the other hand, interference in football certainly leaves the player open for hand injuries.

Technique: One-inch strips of adhesive plaster applied two or three straps overlapping each other, starting on top of the first joint of the thumb. The straps are carried with firm pressure around the thumb on the inside between

it and the index finger, then under that joint and up on the inside of the hand. Instead of being fastened in a straight line upward, it is turned in a sharp twist outward across over the top of the wrist. (See *Figure* 24.)

This bandage is intended to prevent thumb sprains, dislocations, etc., and at the same time not to hinder the player.

The Wrist Strap

This strap is used to advantage by athletes who lack steadiness and strength of the wrist. It also

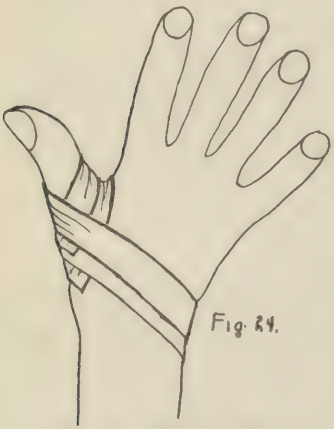


Fig. 24—Thumb strap

Fig. 25—Wrist strap

lends a moral as well as physical support to the athlete who has had this member sprained or broken previously.

Technique: Apply two-inch width adhesive plaster circular fashion, off the roll, with great firmness, allowing one end to overlap the other, Gibney fashion. (See *Figure* 25.)

Hand, Wrist and Thumb Bandage

Generally used in football. Its purpose is to pre-

vent thumb sprains and also to effect solidity of the entire hand and thus prevent similar injuries to the hand and wrist.

Technique: Two continuous straps of two-inch width adhesive are used. (See *Figure* 26.) Start the first strap

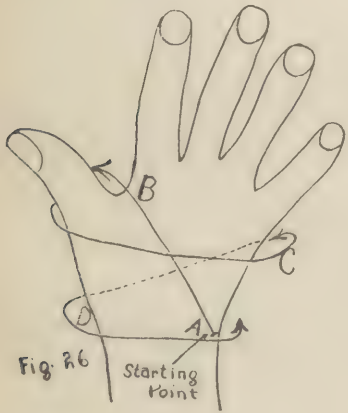


Fig. 26

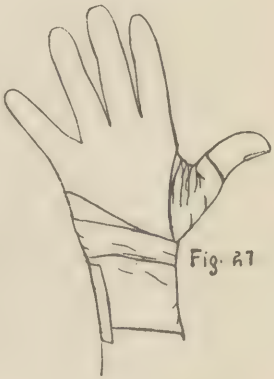


Fig. 27

Fig. 28

Fig. 26, 27 and 28—Hand, wrist and thumb bandage

at point (A) on the outside of the wrist. Carry the same across the top of the hand to a point (B) between the thumb and the index finger. Next make a lap with considerable pressure around the first joint of the thumb and bring across the top, back of the hand to point (C), on its outside, under the palm to point (D) on the inside; from that point across the top to (A). Make two suc-

Fig. 29, 30 and 31—Hand, wrist and thumb bandage

cessive laps around the wrist, one lower and the other a little higher up, so as to entirely cover the upper hand and wrist. (*Figures* 27 *and* 28 are inside and outside views respectively of the bandage so far.)

Apply the second strap from (C), under the hand and across the palm in such a manner that it covers all first joints of the fingers to (B). Bring it correspondingly back to (C), across the top of the hand, and from that point across the palm to (D), so that it thus covers the whole hand-area, when it can be molded to the hand so that it fits like a cast. (*Figures* 29 *and* 30 show inside and outside views respectively of the completed application.) If, in very large hands, there remain uncovered areas, cover with odd pieces of adhesive.

The combination wrist, hand and thumb bandage, as used by boxers, is practically the same as described above, but as in this instance it is of importance to stress knuckle-protection, the bandaging is carried out with a great deal of pressure over the hand in its entirety except the fingers. This is accomplished by the use of quarter-inch width strips of adhesive applied in over-lapping fashion, as is shown in *Figure* 31, which also demonstrates the method of inserting the same width adhesive between the index and fore-fingers. Sometimes cotton batting is inserted under the knuckle part of the bandage. This addition lessens the tightness of the middle hand which is of value to prevent the hand from "going to sleep." However it renders the bandage less of a protection.

Finger Joint Straps

These known as baseball straps, prevent the unsightly malformation of the joint called "baseball finger," to which the youth points so proudly, but in later life regrets. A piece of adhesive wrapped tightly around a finger-joint immediately after being hit by a pitched ball will stop the swelling which is caused from exit of fluid into the larger joint.

Elbow Pad and Strap

These are used in the more strenuous games, such as football and basketball. The purpose of the application is to prevent too much flexion in the elbow.

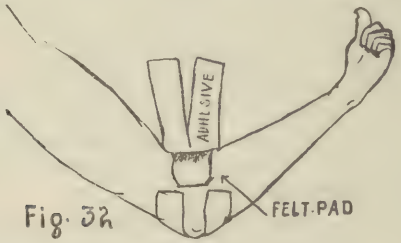


Fig. 32—Elbow pad and strap

Technique: The felt used is adhesive felt which comes in squares. With scissors this can be fashioned into the desired shape. The adhesive is of the two-inch width. Rectangular shaped felt forms the pad, the corners of which should be rounded off so that the pad will fit nicely into the elbow-hook. The method of application corresponds to the one used in the knee pad and strap (see page 20). The degree of flexion-limitation desired, decides how many thicknesses should be used. For correct application see *Figure* 32.

Anti-Flexion Straps

These are often used for purposes of reenforcing "Elbow Pad and Strap" application, but may be used separately.

Technique: Two straps of two-inch width adhesive,

Fig. 33—Anti-flexion strap

shaped lengthwise and well wrinkled, are applied criss-cross directly back of the joint, with the arm in full extension. The straps should reach approximately five inches above and below the joint respectively and should be secured by two circular straps, one at each end as indicated in *Figure* 33.

Anti-Extension Straps

The purpose of this bandage is to prevent full extension of the arm in the elbow.

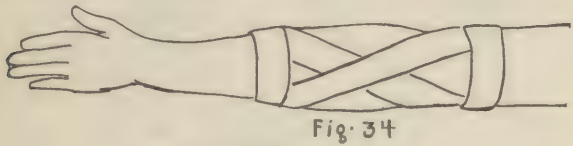


Fig. 34—Anti-extension strap

Technique: The arm is placed in the degree of extension which the athlete is not supposed to go beyond; then apply two two-inch width straps criss-cross fashion in front of the elbow joint in the same manner as in the anti-flexion straps. Secure with circular straps at each end. (See *Figure* 34.)

Shoulder Bandage

The virtue of this bandage may well be disputed because when used for the purpose of preventing either dislocation or subluxation of the arm in the shoulder joint, unusual strain will cause it to slip from its fastenings and render it practically useless. As generally employed in strenuous sports it only acts as a moral support. In using the form here described as a foundation, a most excellent and effective, though somewhat clumsy and heavy, shoulder bandage pad may be constructed. (See Protective Bandaging.)

Technique: *Figure* 35 shows the respective courses of the four straps which enter into the construction of the

Shoulder Bandage. *Figure* 36 shows the completed bandage. One of the straps may be termed a vertical one, and the remaining three horizontal straps. The starting point, (see *Figure* 35) of the first is situated 3 to 4 inches above point C in the diagram, the fastening point 3 to 4 inches

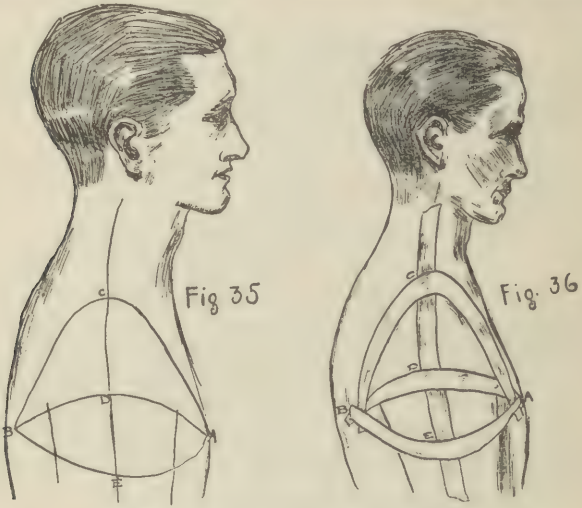


Fig. 35 and 36—Shoulder bandage

below point E. The horizontal straps, though describing different courses, have the same respective starting and fastening points, the former located half-way between the breast bone and the nipple of the chest, in front, and the latter in a place one-half the distance between the lower tip of the shoulder blade and the corresponding part of the spine in back.

In the vertical strap, from C to D to E no pressure is used; the strap is merely placed in its location and patted into fastening solidly to the skin. The middle horizontal strap, from A to D to B is applied with great pressure and preferably off the roll, especially over D. The upper horizontal strap, from A to C to B, calls for only moderate pressure except at point C, where a direct bearing-down weight should be effected. With the lower horizontal

strap, A to E to B, no other pressure is exerted except that of patting. Puckers in the straps, due to curved courses, may be patted into flat wrinkles; these become strength-preserving ridges in the bandage.

Armpit Pad and Strap Bandage

Lending a sense of added security to the wearer, as it does, the Shoulder Bandage is often reenforced by applying the Armpit Pad and Strap bandage. This application is also employed separately.

Technique: This bandage consists of a rectangular shaped non-adhesive felt pad, generally two inches in thick-

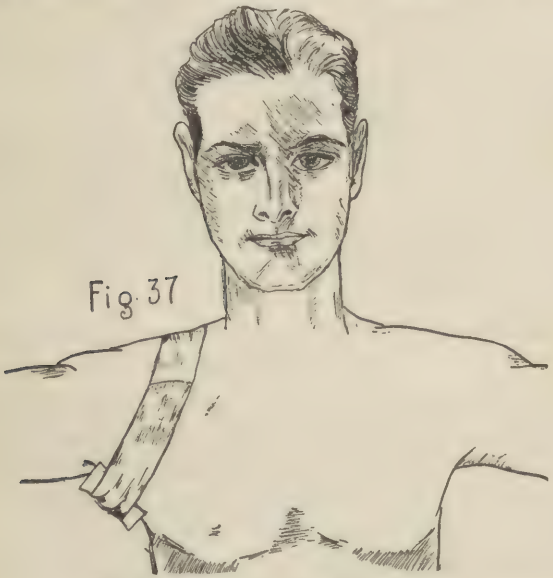


Fig. 37—Armpit pad and strap bandage

ness, which is placed well up in the hollow of the arm, commonly known as armpit. It is held in place by a circularly applied, two-inch adhesive strap, as *Figure* 37 indicates. In construction the Armpit Pad and Strap is so simple, that no further description is deemed necessary.

Individual Bandages

It is very important that men competing, should at all times feel fit, both physically and mentally. One of the main factors toward making an athlete feel fit is that he should be made to feel secure. If he fancies that there is something the matter with him which in his opinion could be remedied by applications, as herein described, it is well to humor him in his belief. To permit him to enter a contest in an uneasy frame of mind is to effect his playing seriously.

If the trainer feels that he should make some form of application, he should bear in mind that pressure over sore and weak points of the body, whether real or fancied, is always conducive to a sense of security and relief. Circular bandages are preferred without too much pressure. Accentuating pressure over the part desired can be effected by inserting pieces of felt at these points, between the skin and the adhesive plaster.

Combination Gauze and Adhesive Plaster Applications

There are three types of adhesive bandages in which it is essential to employ gauze as well as adhesive, in combination, in order that the adhesive shall not come next to the hair growths that exists in such places: 1. Testicle bandage. 2. Wrestler's ear bandage. 3. Head and jaw bandage.

Testicle Gauze and Strap

So-called jock straps should always be worn by athletes in active participation, but sometimes it becomes necessary to effect additional security.

Such applications are used to cause a "lift" of the bag when as in varicocele, there is a feeling of "bearing down" calling for a support underneath.

Technique: Prepare a two-inch width strap of adhesive of such length that it will reach from hip to hip and in its course which naturally is curved downwards in front, forms a support underneath the bag, which contains the testicles, at its base; in the center part of this strap which covers quite hairy surface, gauze bandage two inches wide, for a distance of approximately six inches, should be attached so that the adhesive is prevented from coming in contact with the hair on that part. The jock strap is then applied.

Wrestler's Ear Bandage

The purpose of this bandage is to prevent results of friction such as the unsightly malformations known as "tin" or "cauliflower" ears. Professional wrestlers would regard with disdain the idea of appearing within the roped square wearing such bandages, but to the college man and the amateur, it is essential not to carry any marks of the sport through life. Such bandages are in practice, used nowadays by some professional wrestlers.

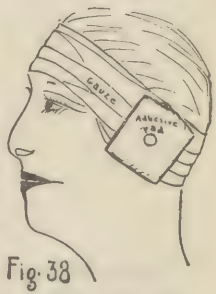


Fig. 38—Ear bandage

Technique: Cotton batting is put behind the outer ear, to form a cushion between the ear and the back of the head. Then apply a two-inch width gauze bandage one or two laps around the head, so that it covers the ears in their entirety and pressing them well back against the head, follow by an application of three-inch square adhesive plaster bandage so that the sticky side slightly overlaps the gauze edges laterally. (See *Figure* 38.) Airholes should be made with the scissors; directly over the apertures of the ears allow for ventilation and hearing.

Combined Head and Jaw Bandage

This is useful for those who have tendencies for partial dislocations of the lower jaw, but when used in football it is not of much value unless the customary headgears are worn over them.

Fig. 39.

Fig. 40

Fig. 39 and 40—Head and jaw bandage

Technique: Two-inch width gauze bandage is used, of sufficient length to fit around the head from the chin point to the back top part of the head. A square of adhesive plaster three inches wide, is fixed in the center of this gauze length. This, in application, fits over the point of the chin and allows the overlapping of a small part of the adhesive to the skin which secures it at that point. The bandage ends are now split length-wise down toward the adhesive plaster part at which points they are tied in knots, thus leaving four one-inch width bandage ends. These are then tied around the head, the upper ones on top of the head and the lower ones at the neck. (See *Figures* 39 *and* 40 for method of application.)

Underlying Gauze and Bandages

Skin conditions of the feet and other parts of the body at times do not permit the immediate application of adhesive plaster next to the skin and necessitate underlying layers of gauze.

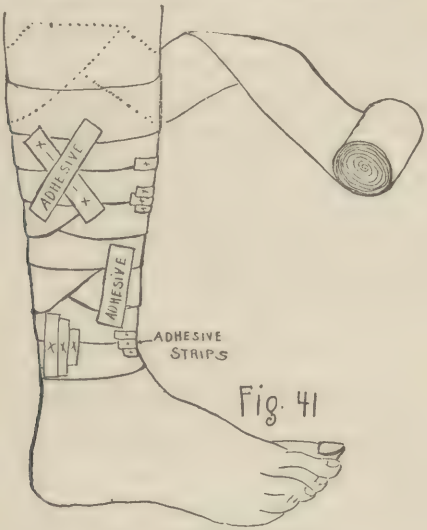


Fig. 41—Spiral bandage

Adhesive plaster in order to give security should "stick" to the skin over the entire area but when gauze is used it is essential that the upper and lower edges of plaster overlap the gauze application, and thus come in contact with the skin. If for any reason one is unable to employ adhesive plaster bandaging, a gauze application is healing on ankles in football and basket-ball, hockey, etc. Gauze bandages when used should be applied in several laps Figure of 8 fashion, fastened with pieces of adhesive plaster. Should a tendency for

sprains exist in any member of a team, it is advisable in addition to the "Figure of 8 Gauze Bandage," to apply a two-inch width strap of adhesive around the instep.

When applying the gauze bandage on legs and arms in order to secure dressing, a spiral bandage, generally two-inch width, is used and the mode of applying is termed spiral fashion.

Technique: The spiral fashion bandaging is the continuous wrapping of the gauze bandage off the roll in an upward direction each turn overlapping the previous one. At times it happens that the bandage develops a tendency to pucker; this is overcome by making reverse turns at such points. (See *Figure* 41.) Precision evidenced in surgical bandaging is neither necessary nor to be urged, in athletic bandaging. The athletic trainer generally secures his gauze bandage by criss-cross strips with odd ends of adhesive plaster. (See *Figure* 41.)

Protective Bandages

The difference between preventive and protective bandaging is very small. Protective applications, in athletics, are of a permanent nature which may be re-applied, whereas preventive applications are discarded after use and new ones applied.

The principal materials used in making up protective applications are felt and adhesive plaster. By the use of these two materials, the Shoulder-Bandage Pad is made. Other materials are pneumatic doughnuts of rubber and sponges of soft rubber. Flannel and elastic bands are used in completing certain protective appliances—and so-called fibre-board. These may be purchased in drug or sporting goods stores; suitable leather may be obtained from shoemakers.

Rubber sponges, used either whole or cut into appropriate sizes and shapes, are excellent protections and are easily fastened, by means of adhesive strips. These protections are made more effective by flanking and surrounding them with two or three thicknesses of felt, fastened with one-inch adhesive plaster strips. Rubber sponge and felt applications may be covered in their entirety with one-inch or two-inch width straps of adhesive plaster put on in Gibney fashion. This prevents the spreading of the rubber material on top. So-called stone-bruises, common among hurdlers, jumpers and vaulters on the landing-foot occur mostly at the ball or heel part of the foot. Protections like the above mentioned prove beneficial in avoiding these bruises.

Rubber doughnuts are also good means of protection. As a rule they are strapped to the surface in places that are in need of protection, by means of adhesive plaster, they may also be fastened to the clothing.

The Glimstead Shoulder Bandage Pad

The purpose of the Shoulder Bandage Pad is very much the same as that of the Shoulder Bandage itself, and it is constructed along the same principles. As pointed out in the foregoing chapter, the Shoulder Bandage is not very effective, whereas the Shoulder Bandage Pad is. It is advisable to make these pads for such members of a team as are troubled with shoulder sprains and tendencies for dislocations, also subluxations or slink-joints.

Two objections have been offered against the use of the pad: (1) the expense, (2) the action of the player. It is true that it takes considerable

adhesive plaster and other material to make it, but once made there is no further expense. As to the bandage being clumsy, that is really more a matter of appearance than anything else. If properly con-

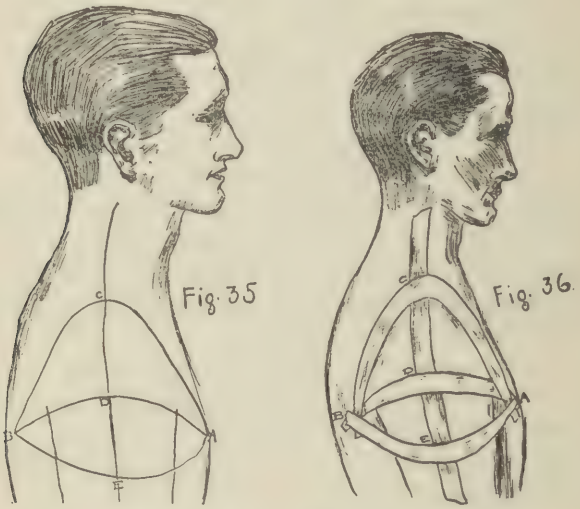


Fig. 35 and 36—Shoulder bandage

structed there is no reason why it should stop the player in action. The pad is used mostly in football and, like most protections in that sport, it needs to be substantial in order to be effective.

Technique: The main body of the pad is an adhesive plaster cast, which is built over the preliminary application of the Shoulder Bandage, as illustrated in *Figures* 35 *and* 36. It should be borne in mind that the upper horizontal strap is carried as far up on the neck as possible, in order later to have the neck fastening band attached. The lower horizontal strap is placed considerably lower down over the upper arm to facilitate fastening of a similar arm band. The trainer is expected to use his good

judgment in regard to how far up, and low down these straps should be applied.

The preliminary application finished, the horizontal strap idea is now carried out over the entire bandage area, the additional adhesive straps overlapping one another by one-half their own widths, (the two-inch width adhesive should be used). The expression, entire bandage area, in this connection, is the shoulder space within the boundary lines of A-C-B, above and A-E-B, below (See *Figure* 35 and also compare with *Figure* 36.) The A-C-B course is an upward and curved one, that forms a veritable angle, with its apex pointing directly at the subject's earlobe. This allows a good many puckers in the adhesive strap; these, by smoothing become strengthening ridge-wrinkles. The lower course, A-E-B, constitutes merely a slightly arched one, the degree of curve depending upon the amount of motion-limitation the individual athlete requires. The strap presses the upper arm rather tightly against the side of the body; however, when applied lower down it is more effective upon completion and the writer earnestly advises the athlete to sacrifice comfort to effectiveness.

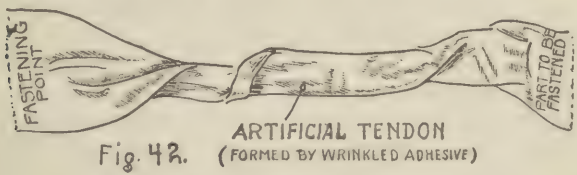


Fig. 42—Artificial tendon

Figure 42 indicates how the plaster should be treated to accomplish what the writer terms as artificial tendons. To apply efficiently, this treatment should be effected over points C and D. These "tendons" may also be created over other points where the individual trainer may think necessary. In applying the first two layers of adhesive, and all the subsequent horizontal ones, one may start from the top and work down, or vice versa, though it is probably easier to work from top to bottom. The pressure exerted and the pressure points, where a bearing down weight is necessary, may be ascertained from the technique on pages 33-34. Pressure is not as important in this

bandage as in the Shoulder Bandage for in the Shoulder Bandage Pad we attain the needed compactness for solidity in the completed cast-pad. We must, in this instance think somewhat of the individual's comfort during the days to follow, while the cast is setting. Too much pressure during the setting may be very uncomfortable.

The three remaining considerations are : (1) Creating hems, (2) Sewing into solidity, and (3) Shaping, molding and patting into anatomy cast-form. Observing these three items means looking ahead, because they make for the perfect finish. Protective material will give one hundred per cent effectiveness only when the cast may be cut into by scissors and sewing needle without losing its surface contours, and when area lines remain intact.

Discussing these considerations we find it is necessary:

(1) To create hems over the upper and lower borders. The upper and lower horizontal straps are allowed to overlap the intended upper and lower borders, by one-half their own adhesive lengths. The half lengths are doubled over causing them to naturally stick on the inside of the cast and so constitute the desired edge-hems. It is wise to repeat the process quite a number of times, in order to have it become sufficiently solid.

(2) In sewing into solidity, artificial tendons, of adhesive as previously described, may be shaped over lengths of gauze, cotton or canvas bandage, stretched over equal distances with adhesive horizontal straps. The tendons are constructed of three-inch width adhesive. The tendons are strengthening over the courses A-C-B, A-D-B, and A-E-B. (See *Figures* 35 *and* 36.) In the A-C-B course the gauze should be a trifle low and for the A-E-B course a trifle high. This is done in order not to disturb the edge effect of the hems. It is also well to apply an artificial tendon along the course C-D-E, guarding against uneveness at the borders. In addition, it is necessary to occasionally insert a gauze, cotton, or canvas length horizontally, in the in-between spaces. This is systematically done by alternating cloth lengths with the ordinary horizontal adhesive plaster straps for two complete layers; these layers must not be successive ones. It is well to time them so that in the completed bandage they become a center

thickness. At straining points add cloth occasionally in a vertical direction. These points are along the courses C-A, A-E, E-B and B-C. It will be found that a removed cast will be a clumsy square; the awkwardness of which may be

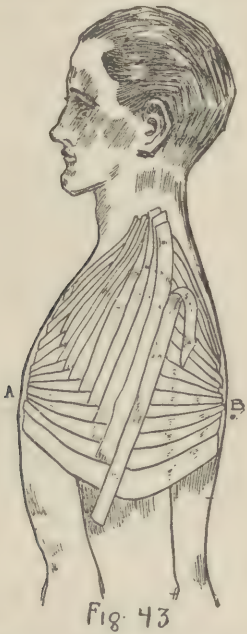


Fig. 43—Shoulder bandage pad

offset by distinct sub-divided borders. Cloth is also valuable in creating hems at these points. The depth of the convexity should be made accentuated in the plaster application, when under construction, by separate strapping in sub-divisions, C-D and D-E. Follow directions carefully and compare with *Figure* 35.

(3) The third consideration is molding. Place your hands over the cast, massage gently but firmly; avoid rubbing as this will loosen the surface bandage ends. You will find the handling of adhesive plaster fascinating indeed, and if you practise "snappy" technique in handling

the spools, later adopting tender wrist, hand, and finger movements in shaping, you will become very expert in the art of bandaging. Instructional advice in regard to anatomical and physiological advantage points can only be given by physicians and surgeons. Your medical practitioner should be consulted before you endeavor to bandage. Professional trainers often fail to do this and for that reason we hear cases of sad fatalities where trainers have attended the athlete without this consultation. To consult the physician is to apply the Golden Rule of playing safe. The considerations discussed apply to all adhesive plaster bandaging as they do in the Shoulder Bandage Pad and should be applied after each successive strapping.

The next layer or covering in the Shoulder Bandage Pad is constructed after an approximate lay-off of three days and is applied in an overlapping and intersecting manner: This bandage is known as an athletic Gibney-Fashion Adhesive Plaster Bandage. Refer to the text on the Gibney Ankle Bandage; the principles apply to Athletic Gibney-Fashion Bandage and *Figures* 4 *and* 5 should also be referred to. *Figure* 43 gives a very adequate idea as to the proper modus to be employed in applying the straps in Gibney-fashion in the case of the Shoulder Bandage Pad. This illustration also indicates the vertical and horizontal straps; the vertical straps are one inch wide while the horizontal are two inches wide. This strap arrangement gives two layers of horizontal strap covering, to only one layer of vertical straps. The distances from C to E and A to B are almost equal, though stretched in the illustration to give perspective. The application of this Gibney-fashion applied bandage constitutes the second sitting.

There are now some additional sittings, at which the two types of bandage covering, previously described as the results of the first and second sittings respectively, are alternated; it is necessary to make the last covering the same as the first applied, an all horizontal strap arrangement; by this one avoids too many bandage ends. These ends are to be avoided as the bandage ends easily become loosened and will detract from the desired solidity. The final thickness of the plaster cast is determined by the

number of additional coverings; three will generally prove sufficient. In large and heavy men and in athletes where "beefy" strength prevails in preference to actual speed, it may be necessary to make a heavier and thicker bandage-cast. This also applies to such men who at some time or another have suffered injuries which are likely to reoccur, such as sub-luxation or "slink-joint" in the shoulder. Thickness of the cast largely depends on individual necessity and judgment.

When the last layer or covering has set and fits perfectly to anatomical lines, trace with an indelible pencil, before the adhesive plaster application is removed from the athlete's shoulder the approximate outline of the shoulder blade in the back and of the collar bone in front. These places are clearly indicated in *Figures* 44 *and* 45. Note in these illustrations of the complete pad, the rather liberal territory of the shoulder blade space. Study these illustrations and compare with the text describing how the Shoulder Bandage Pad is completed.

When the bandage-cast finally has been removed from the athlete's shoulder, his skin will likely need some extra attention, a vigorous alcohol rub at least.

After the removal of the adhesive plaster cast, sprinkle it inside with talcum powder; then proceed to perfect it as a protection.

Protective material used in shoulder casts generally consists of rubber sponges and felt, fastened to the adhesive on the inside, a rubber doughnut or two and leather for the outside. The writer has found that many small shoemakers are very adept in doing the supplementary work of making the pads, under the direction of the trainer. Let us suppose that we are dealing with a man who has tendencies for such partial dislocation which medical men term "subluxations"; also nerve injury and the attending pains that are almost paralyzing to the touch at point E, also a collarbone that has been fractured at some time and therefore may be considered fragile. In order to protect him as much as possible follow this technique:

Partially softened sole leather is cut so that it will cover the area of the shoulder blade, already traced, and stitched along on the outlines of the tracing. A slit across the

leather patch is effected one-third its own length down (see *Figure* 45), so that it will "hinge-joint," which will cause a blow directly over the most delicate part of the shoulder blade to glance off. Pieces of felt, double thicknesses, about one inch wide, are next inserted running in parallel direc-

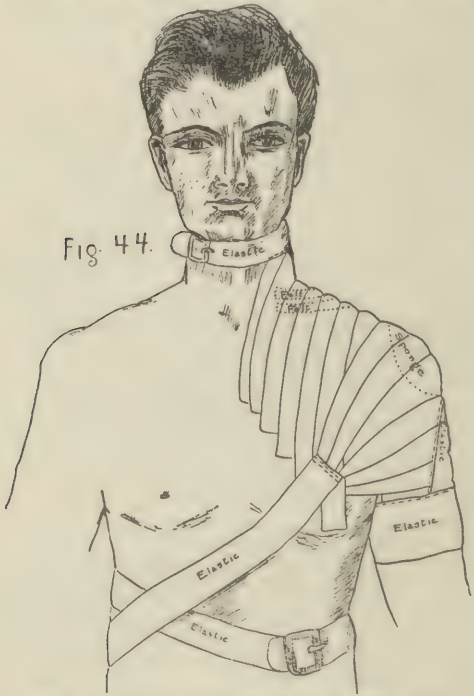


Fig. 44—Front view, shoulder bandage pad

tions on each side of the collar bone. (See *Figure* 44). A flannel lining is cut and sewed on the inside of the bandage. Before fastening this lining to the arm part, make a "V" shaped incision from over the shoulder point down to the arm. (See *Figures* 44 *and* 45.) Under and below this "V" a circular elastic band is sewed on for the purpose of arm insertion in the completed pad. Similarly there are also two elastic bands sewed on at the neck, one in

front and the other behind, one of which is provided with a buckle attachment. This completes the Shoulder Bandage Pad. (All the protective additions, etc., show clearly in *Figures* 44 *and* 45. These illustrations also show the proper manner of wearing the completed pad, front and rear views.)

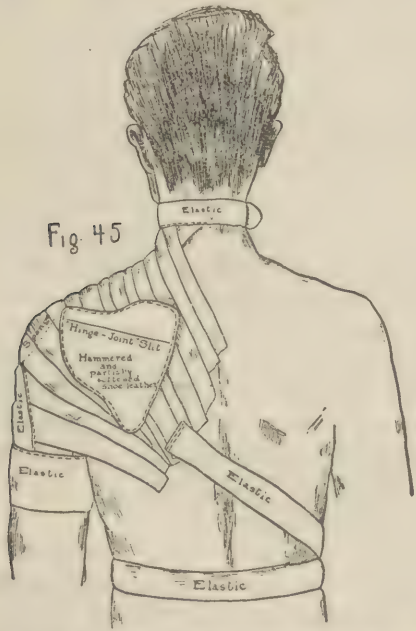


Fig. 45—Back view, shoulder bandage pad

When putting it on for use, first insert the arm in the arm elastic and pull it well up. Then fit the pad snugly over the entire shoulder; buckle the neck elastic; fasten the body elastic straps around the chest; have them cross and meet on the other side where they are buckled together.

This pad gives much protection, at the same time it will be found that there is sufficient give in its construction to permit that degree of arm movement which allows an over head throw and

sufficient solidity to prevent subluxations. The writer had the opportunity while on active service overseas during the World War, to make a few of these pads, unofficially, for comrades in arms and noted with satisfaction that such a pad was not too clumsy even for one particular soldier whose specialty was hand-grenade throwing. It is true enough, that the newly made pad needs breaking in, in order to establish the essential give.

In football the protection thus afforded over an already injured nerve is of great value; it is at times surprising how many sterling players there are who have to forsake playing because of such an injury, which heretofore, has had no other protection than the customary shoulder guards alone. Shoulder guards, however, are very suitable for use in conjunction with the pads. If need be, double sets of pads for both shoulders, may be made. In such cases the writer fails to see why these protections alone should not constitute sufficient shoulder protection and be vastly superior to clumsy shoulder guards.

The Shoulder Bandage Pad is so light and comfortable that it is used in the participation of the fastest of sports, such as college basketball, and baseball. The writer recalls making one for a well-known professional pitcher, who wore this pad successfully for one entire playing season.

"Charley-Horse" Fibre-Board Protection

Injuries termed "Charley-horses" by athletes are idiosyncrasies in that while they really are nothing else than muscular bruises, they differ from the ordinary ones in two respects, viz: (1) A small lump can be felt sliding, so to speak, under the

skin. The lump is located in the center of a bruise that some times covers an area of four by four inches. (2) Decided stiffness, which may become permanent if that part is subjected to further injury. Physicians generally recommend an antiphlogistine application and continued exercise. The athlete is also advised to have the fibre protection application while in scrimmage or games, to prevent recurrence of the injury in the same spot. It is stated by medical men that the peculiarity of this injury is due to the bruise having been a directly "inward" one.

Technique: The fibre-board should be sufficiently large to cover the bruised area in its entirety and some of the healthy area at each end. At these points rubber doughnuts should be inserted. The rubber doughnuts should be fastened with adhesive strips either to the skin or to the under side of the fibre protection which should have been formed to fit the convexity of the thigh. The fibre should be of the kind used by surgeons in making casts which become pliable when moistened. It can then be shaped and when dried resumes its former stiffness without losing its created form. The completed protection is fastened to the thigh by means of three circular two-inch width straps, one at each end and one in the middle. In men with very muscular thighs it is advisable to use three-inch width straps in fastening.

Corrective and Restorative Bandages

The athletic trainer or the athlete himself should never attempt to encroach upon the province of the physician, and they should refrain from doctoring. Their province is to protect and to prevent, not to cure. In all cases where there is doubt or where there is danger of extension, the injured should be at once referred to a physician.

The trainer can, however, greatly aid the physician in correcting an injury and in carrying out the remedial measures prescribed. For example, the athletic trainer has before him an athlete who has apparently sprained an ankle. The trainer will be justified in applying an ankle bandage; but appearances often deceive, and he should call in a physician for verification and advice. If the physician finds that a fracture or a dislocation exists, the trainer has the satisfaction of having played safe. If, however, the injury proves to be a sprain, the physician will allow the bandage to remain.

Medicated Poultice Bandages (Antiphlogistine)

When a physician orders bandage applications of this type, it is well to know the technique whereby they may be made secure to withstand the strain in athletic work. These bandages are often rendered impracticable because of the difficulty of making up the applications so that they retain their soft contents. While applications of this kind are easily made when the patient is confined in bed, different technique is called for athletes suffering from strains and bruises.

Technique: We will suppose that a clay bandage has been ordered to be applied to the small of the back in a case of muscle strain. Surround the affected area by a square of adhesive plaster using two-inch width which prior to application has been doubled lengthwise so that an adhesive surface is out. Thus, while half of the width of such a strip of plaster is fastened to the body, there is also an out surface adhesive side of approximately one-inch width. Four strips prepared in this manner form the aforementioned square. Upon this adhesive strip square should be fastened felt, four one-inch widths; one or two

thickness forming a pocket into which the clay that has been heated is poured. (See *Figure* 46.) The clay is then patted into compactness by the use of a spatula, a sort of flat knife, and is covered with a smaller square of oil-silk which in its turn is covered in its entirety by three-inch

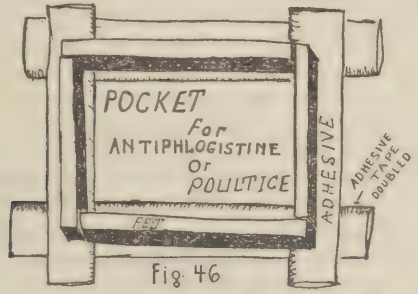


Fig. 46—Medicated poultice bandage

width strips of adhesive plaster in an overlapping fashion. When dealing with other parts of the body the same principle in application is utilized.

If felt is not procurable, absorbent cotton fluffed up may be substituted.

Many physicians direct that this type of application should be kept constantly hot, an easy matter when the patient remains in comparative inactivity. In such cases hot-water bottles may be attached to the bandages.

In each of two diagonal corners of the original adhesive strip square, fasten two five-inch lengths of two-inch gauze bandage, by means of adhesive strips. Complete the bandages as described above which will assist in securing the fastening of the gauze straps and when the bandage is complete these will remain free. Split them lengthwise down to their fastening points and tie the split ends. The standard hot-water bottle usually has apertures at each end. Utilizing these and the created split bandage ends secure the hot-water bottle from one corner to another over the bandage application. The bottle must, of course, be of corresponding size to the given length of from one diagonal corner to the other. It is feasible to keep the bottle supplied with hot water throughout the day.

The necessity of the physician's services in cases of injury cannot be too strongly stressed. In cases of cuts, abrasions and blisters as in cases of emergency when no surgeon is available, the dressing known as Band-Aid is of value. Speed is essential and Band-Aid combines dressing and adhesive plaster together. In emergency cases Band-Aid is a very satisfactory dressing. In order to apply, remove the crinoline covering only for such a length as is needed in application; then with scissors cut the necessary size bandage and apply so that the gauze strip covers the wound. If other dressings are needed the attending physician will decide.

Sometimes when physicians have already made dressings for cuts and abrasions, etc., the trainer may feel justified in applying adhesive plaster over such dressings to protect them while the athlete is actively engaged. If care is taken in removal it will be found that the surgical dressing underneath has remained intact.

Miscellaneous Uses of Adhesive Plaster in Athletics

There are a large number of instances in every day life when the many properties of adhesive plaster are of advantage; so also in athletics.

Trackmen use a covering on their feet called pushers. While they should not be too snug, they must not be loose. The trainer is at times unable to supply the proper size; if they should happen to be too large, they are easily fastened by means of adhesive plaster. Trackmen at times have to contend with too large running shoes. This robs them of confidence in themselves for fear that they may lose a shoe at the critical moment. Straps of adhesive plaster applied circular fashion around the shoe at the instep constitutes a preventive for the shoe coming off, and a mental assurance as well.

The ordinary vaccination shield whether used for its original purpose, or for protection to

scratches or infected parts can be held in place by adhesive plaster.

In some sports (especially football), the pants become easily torn and the old practice of using safety pins to patch up tears is not so safe as the name implies. They may become unfastened and injury may result; adhesive strips suffice equally well and are safe.

Pole vaulters and javelin throwers desire to strap the parts of their poles that come in contact with their hands, to prevent them from slipping. Three-inch width adhesive plaster, applied circular fashion, is much to be preferred for such purposes to electric insulator tape, which after it becomes molded to the surface, adds considerable weight and is sticky.

Tennis players also desire to tape their racquets; weight is some times desired in spots. In such cases it is quite all right to use electrician's tape, underneath and cover with the adhesive plaster, not only because it is smooth but for appearance as well. Such applications of adhesive plaster may well be used for golf clubs, hockey and lacrosse sticks, baseball bats, polo clubs, etc.

Adhesive plaster is also used to advantage in securing all kinds of braces used under the physician's direction by individual athletes, to protect weak knees, easily dislocated elbows, etc. On the limbs, straps of adhesive for such purposes are to be applied in circular fashion. If used in connection with elastic appliances care should be taken not to fasten the straps so tight that the circulation becomes impaired.

The essential thing is to keep the appliances in place.

The scope for the miscellaneous uses of adhesive plaster is indeed very large. The wide-awake trainer will, as time goes by, find new uses for it continually.

Uses of Adhesive Plaster in Cricket

While cricket is comparatively little known in the United States, there is a large interest in that sport in Great Britain and its Colonies and Dominions.

Outside of shin injuries, usually prevented by already constructed shin guards, the most common injury consists of thumb sprains. When practicable the player should avail himself of sprain-preventing thumb straps such as described on page 27. In cricket, the first described application is the most advisable.

Ankle sprains are not uncommon in cricket; the figure of eight ankle bandage, should be used by players with tendencies for ankle sprains.

Many players like to weight their bats. They will find that adhesive plaster constitutes very consistent and well appearing covering in completing such weight-applications.

Three-inch width adhesive straps applied circular fashion over the cricket bat handles are effective "strappings" because of the moisture-absorbing quality of the adhesive plaster.

The wood in the broad part of cricket bats splits very easily. Adhesive strips applied around the bat at these points or where it already has started to crack will prevent the further spreading and give the cricket bat a longer life.

"Z O" Adhesive Plaster

To carry out the instructions in this booklet, dependable adhesive plaster must be used. Because of its cleanliness, convenience and freedom from irritating qualities, "Z O" Adhesive Plaster has been declared by authorities to be the most suitable of all adhesive plaster for athletic purposes. It will be found in the training quarters of leading teams.

It is stronger, very adhesive and is not affected by heat, cold or moisture. Being perfectly flexible, it conforms comfortably to any part of the body. No ill results follow long application.

"Z O" is supplied in rolls one yard and five yards long, seven inches wide; and five yards long, twelve inches wide, not porous. It is also supplied on moleskin, not porous, in the same sizes.

On spools, it is supplied in lengths of two and a half yards, five yards and ten yards, in all widths from quarter-inch to four inches.

JANUS ADHESIVE, double-faced, used in making pockets for poultice bandages, is supplied as follows: In rolls—five yards long, seven inches wide; in pieces—one yard long, seven inches wide, three pieces to a package; in strips—one and a half by three and a half inches, twelve in a box; on spools, two yards long, one and a half inches wide.

Jonco Tape Adhesive Plaster

Jonco Tape Adhesive Plaster will commend itself to all athletes because it possesses all those qualities so essential to a tape used as a protective dressing in sports. It is waterproof, exceptionally thin, unusually strong, pliable and durable. It is made in gray color so it will not show soil, a feature which will be appreciated. Its flexibility and smooth, soft finish make it comfortable to wear.

It is supplied in one size only—two and a half yards long, one inch wide. It is wound on a cylinder core and packed in a durable metal box.

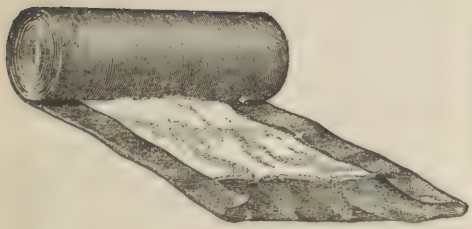
Linton Gauze Bandages

Linton Gauze Bandages are very absorbent and soft, yet firm and strong. Their strength commend them for athletic bandaging; while their purity is assurance that the athlete who uses them need fear no contamination.

Made primarily for surgical use, they have been recognized throughout the world as the perfect bandages for all purposes. They are sterilized—fit to apply direct to any wound. They are packed in hermetically sealed cylinders, which keep them absolutely clean indefinitely.

Supplied six and ten yards long in the following widths: 1, 1½, 2, 2½, 3, 3½, and 4 inches. The Finger Bandage is three yards long and one inch wide.

Red Cross Absorbent Cotton



Note how the cotton is encased in tissue so that all surfaces, including the edges, are protected from dust, dirt and infection. This is the only cotton so wrapped.

For athletic use, absorbent cotton should be pure, that is to say, free from all chemicals, dirt or foreign materials.

Red Cross Absorbent Cotton, made by Johnson & Johnson, passes through very many cleansings, the last of which is sterilization. It is pure, clean and altogether reliable.

Red Cross Absorbent Cotton is put up in blue cartons, in sizes from a half ounce to a pound. It is rolled in blue tissue paper, so that all surfaces, including the edges, are protected from dust, dirt and infection. This enables the user to cut off as much as is desired without touching the remainder, insuring a clean roll until all is used.

Johnson's Toilet Powder

The chief concern of the athlete, in selecting a talcum powder, should be to secure one of purity.

A highly scented powder may irritate the skin. An adulterated powder may clog the pores, prevent perspiration and produce pimples, blotches and rashes. There can never be any question about the quality of Johnson's Toilet and Baby Powder. Made primarily for the most tender skin in the world—baby's—it has been adopted by adults, on the certain knowledge that a powder which is best for baby's skin is best for anybody's skin.

Every ingredient of the powder is carefully tested in the Johnson & Johnson laboratory and must meet the highest standard of purity and quality. Chemically pure, washed and floated talc, combined with antiseptics in proper proportion, alone find their way into the powder.

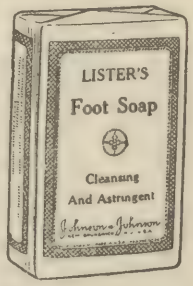
It contains no starch, no clay, no fillers of any sort, intended to make bulk and weight, which fill the skin pores and injure the skin.

Johnson's costs no more than ordinary powder. It is ideal for the athlete's use.

Lister's Foot Soap

"The feet are inclined to perspire more freely than any other part of the body and, therefore, unless kept clean, skin trouble very easily results. A good foot soap will assist in cleaning the feet effectively, and being astringent and antiseptic, will aid in preventing infections," says Mr. Glimstead on page 7 of this booklet.

In Lister's Foot Soap, made by Johnson & Johnson, athletes will find not only cleansing properties, but astringent qualities. Its constant use will aid in keeping the feet in perfect condition. It is made in laboratories that have specialized for many years in preparing medicated soaps for the use of physicians.



Band Aid—An Instant Dressing

Many layoffs could be prevented if the small cuts and scratches were given immediate attention. Band-Aid—a combination gauze pad and adhesive plaster for holding the pad in place—makes this possible. Besides its use as a dressing for small cuts and abrasions, it is often applied to the joints of the toes to prevent shoe rubbing; to various parts of the feet to protect callous skin and blisters, and over old and partially healed cuts.

Synol Soap

As perfect condition of the skin is so essential to those engaged in athletic activities, athletes will be interested in Synol Soap, a cleansing, antiseptic liquid soap. Bland, soothing, and yet thoroughly dependable in its antiseptic and germ-destroying properties, the usefulness of Synol Soap has become so evident that many athletes keep it constantly available in their lockers and at their homes.

Synol is efficient for disinfecting cuts, wounds and scratches. Its fine lathering qualities give it great efficiency—clean away dirt, grease and perspiration. In case of injury, always think of Synol first. Bathe even the slightest scratches with it, remembering that infections are easily prevented, but hard to overcome when started. A neglected cut may result in blood poisoning.

The vegetable oil base of Synol makes it highly appreciated for shampooing.

It is fine for excessive perspiration. It removes gasolene, cigarette and other disagreeable odors from the hands and body. After a sea-dip, Synol removes the salt from the skin.

Synol Soap is supplied in four-ounce and ten-ounce bottles, with finger grips which enable soapy hands to retain a firm grasp. It is also supplied in half-gallon and gallon cans for those who use large quantities.

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